Running Applications on Pleiades with Your Local License

If you want to run an application on Pleiades with a license that resides on a local license server (not directly accessible from outside your local network), you can use SSH tunneling, also known as port forwarding. The examples below show you how to establish port forwarding and run your application on either a Pleiades front end (PFE) or a Pleiades compute node.

Note: The examples assume that the hostname of your local license server is license.abc.edu, which uses port 29810, and that you are connecting from your local system to pfe24. Be sure to replace these with the correct name and port number of your license server and the actual PFE you want to connect to. To find the hostname and port number of your local license server, check the setting of the LM_LICENSE_FILE environment variable on your local system or consult with your system administrator.

Step 1. Connecting to Pleiades

Use SSH to connect to pfe24 from your local system and establish remote port forwarding using the -R option, as follows:

- If you normally use one-step connection (with SSH passthrough):

  your_local_system% ssh -R 29810:license.abc.edu:29810 pfe24

- If you normally connect to Pleiades in two steps (connecting first to an SFE, and then to a PFE):

  your_local_system% ssh -R 29810:license.abc.edu:29810 *sfeX*
  (enter passphrase/passcode/password as needed here)
  sfeX% ssh -R 29810:localhost:29810 pfe24

where *sfeX* represents sfe[*6-8*].

In both cases, the port number listed *before* :license.abc.edu (the first 29810) is used by pfe24, while the port number listed *after* license.abc.edu: (the second 29810) is used by the license server.

Note: We highly recommend using the same port number for both the PFE and the license server, as shown in the example, and that you use the number set in the LM_LICENSE_FILE environment variable on your local system. However, if you choose to use a different port number for the PFE, be sure to avoid using numbers 0-1024 (root privilege required), 5900 (on Mac systems, reserved for some Apple remote desktop products), 59*xx* (reserved for VNC) and 6000-6063 (reserved for local X window server).

Step 2. Running Your Application

You can now run your application on the PFE or on a Pleiades compute node via an interactive PBS session.

Running Your Application on the PFE

In the same window where you connected to pfe24, set the environment variable LM_LICENSE_FILE to the port number you specified for pfe24 in your initial connection (i.e., the number *before* license.abc.edu), and then run your application:

pfe24% setenv LM_LICENSE_FILE 29810@localhost
pfe24% ./app

Note: You can run both commands in a separate window that has a new connection to pfe24. However, in order for the connection to the license server to remain active, the first connection window (with the remote port forwarding) must remain open.

Running Your Application on a Compute Node

In the same window where you connected to pfe24—or in a new window with a connection to any PFE—submit an interactive PBS job to get into a compute node. On the compute node (for example, r451i1n5), establish local port forwarding by using the SSH -L option. Both the compute node and pfe24 should use the same port you specified for pfe24 in your initial SSH connection (i.e., the number *before* license.abc.edu). Then, run your application.

pfe24% qsub -I -V -lselect=1:model=ivy
r451i1n5% ssh -fNL 29810:localhost:29810 pfe24
r451i1n5% setenv LM_LICENSE_FILE 29810@localhost
r451i1n5% ./app

Note: In the SSH command line, the -N option tells SSH to do port forwarding only, without executing a remote command. The -f option tells SSH to go to the background just before a command is executed.

For Applications that Require Two Ports

Consult with your system administrator for the correct port numbers to use, or check your local LM_LICENSE_FILE settings.

The following examples assume that the two ports needed are 29810 and 28500.

- To run the application on pfe24:

  your_local_system% ssh -R 29810:license.abc.edu:29810 -R 28500:license.abc.edu:28500 pfe24
  pfe24% setenv LM_LICENSE_FILE 29810@localhost:28500@localhost

```
pfe24% ./app
```

- To run the application on a compute node:

```
your_local_system% ssh -R 29810:license.abc.edu:29810 -R 28500:license.abc.edu:28500 pfe24
pfe24% qsub -I -V -lselect=1:model=ivy
r451i1n5% ssh -fNL 29810:localhost:29810 -L 28500:localhost:28500 pfe24
r451i1n5% setenv LM_LICENSE_FILE 29810@localhost:28500@localhost
r451i1n5% ./app
```